

In the Name of Allah

Department of English, Zabid-College of
Education, Hodeidah University



Morphology and Syntax

A Course Handout, for the 3rd
Year-English-B.Ed. Students,
2nd Semester 2014-2015

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Section 1: Welcome to the Morphology and Syntax Course-Handout

The course-handout **Morphology and Syntax** focuses on teaching concepts, terms, knowledge and morphological and Syntactical processes and rules , knowledge about Morphology and Syntax to the 1st-Year-English-B.Ed. students, of the year 2014-2015, 2nd semester 2014-2015, in the Department of English, Zabid-College of Education, Hodeidah University, Yemen, by: Dr. Abdullah Shaghi, an Assistant Professor of Linguistics, Ph.D. in Linguistics, from Aligarh Muslim University (A.M.U.), U.P., India, 2010; M.A. in Linguistics from JNU, New Delhi, India in 2006, and B.Ed. in English from Hodeida University (HU) in 1996.

The course-handout **Morphology and Syntax** (332ج /E332) aims at developing the Yemeni students' awareness of how **Morphology and Syntax** in Yemen (especially in Tihamah of Yemen, Zabid city, Zabid College of Education, Hodeidah University) is structured and studied.

Last year, you studied the course '**Introduction to Language 2**', where you learnt some introductory and elementary aspects of Morphology and Syntax dealing with the study of the structure of words / morphemes, phrases, and sentences (in English in the first place and Arabic in the second place). This year, in your 2nd semester 2014-2015, you're going to study and learn **Morphology and Syntax** in details.

The topics included will be morphemes, allomorphs, zero morpheme, phonological and morphological conditioning, free and bound morphemes, and derivation and inflection, the structure of a phrase in English noun, verb, adjective adverb and preposition phrase and their structure. The structure of a sentence and sentence elements, phrase structure rules and transformational rules will also be taken into consideration. The course will also examine the relationship between Syntax and Morphology by considering the effects that some Morphological Processes have on syntax. Arabic Morphology and Syntax is also examined. Finally, Semantics will also be taken into consideration in this course-handout.

In fact, this firsthand/empirical course-handout of Morphology and Syntax is organized as follows: Section 1: Welcome to the Morphology and Syntax Course-Handout, Section 2: Linguistic Theory, Section 3: (English) Morphology and Syntax, Section 4: Morphology, Section 5: Summary of Lexicology, Section 6: Syntax, Section 7: (Arabic) Morphology and Syntax, and Section 8: Semantics.

Assessment

Regular attendance is strongly advised! Besides the class lectures, there will be:

1. One final mid-term exam including Regular homework exercises to be discussed in class → (45 marks)
2. One final exam including Presence & active participation in class throughout → (105 marks)

Regular Attendance is Strongly Advised!

Despite bad experiences in the past, I will not take attendance this semester. This means, however, that I will not waste my time with students who choose to not show up for classes. I thus repeat: ***Regular attendance is strongly advised!***

Suggestions for Further Reading

I can't stress enough how important it will be for this course that you read at home! So let me repeat: I can't stress enough how important it will be for this course that you read at home! I'm serious and I hope the message is clear.

All classes will follow the same pattern: (i) I will assign you readings, (ii) which you will read for next class, (iii) when I will lecture on that material. This also means: I can't stress enough how important it will be for this course that you attend all classes! Classes will be crucial and equally crucial will be that you understand everything we do. I will not always cover all the material; we will find our pace in a few classes.

The readings materials related to your course-handout of Morphology and Syntax are included in the sources, references and bibliographies list and will be told to you by your lecturer:

In addition, there are some good relevant articles published in refereed journals of the field provided by your lecturer in the computers of your library as well as in your flashes/pen-drives. Don't get me wrong: I just said how important it is to read — but this does not mean that you have to read outside the assigned handout, chapters or sections. The above core readings ***in tandem*** “together” with the class lectures will definitely be enough. ***I'm here to assist you!***

Who am I?

To learn more about me, search my name “shaghi, / abdullah.shaghi / drabdullahshaghi / abdullahshaghi / abulbaraa shaghi” on my website (where

you can download all the lectures and models of final examinations):
<http://abdullahshaghi2012.wordpress.com/> as well as on my gmail / google drive / google blogger, LinkedIn.com, academia.com, scribd.com, or archive.org.

Key Linguistic Terms and Concepts

The Key Linguistic Terms and Concepts for the Morphology and Syntax are as follows:

Most of the following key linguistic terms and concepts for the Morphology and Syntax should be known by all of you. You should be not only familiar with them, but be also able to define them, explain them and give examples. They are not alphabetically ordered.

Morphology: morpheme, free morpheme, bound morpheme, allomorph, zero morpheme, derivational morphemes, inflectional morphemes, zero derivation, augment, affix, prefix, infix, suffix, post-suffix, circumfix, suprafix, portmanteau morpheme, root, stem, fossilized form, closed-class words, open-class words, morphophonology, morphosyntax, class marker, subject marker, object marker, tense marker, aspect, mood, tense, clitics, proclitics, enclitics, paradigm, paradigmatic derivation, syntagmatic derivation, suppression, irregular verbs, defective verbs, backformation, acronym.

Syntax: grammatical relations, verb phrase, noun phrase, kernel sentence, main clause, subordinate clause, relative clause, antecedent, subjectivization, objectivization, cliticization, nominalization, pronominalization, adjectivization, head noun, modifier, determiner, reflexive pronouns, demonstrative Independent pronouns, null pronouns, double-object construction, inherent direct objects, structural objects, oblique objects, adjunct objects, juxtaposition, subject agreement, object agreement, anaphora, cataphora, cleft sentences, pseudocleft sentences, yes-no questions, wh-questions, tag questions, questioning in-situ, echo questions, serial-verb construction, constituency analysis, existential clause, focus construction, transitivity, intransitivity, extraposition, dislocation (left/right), external relation, alienable possession, inalienable possession, valency, passivization, antipassive voice, ergativity, agent, causative, causee, causativization, accusative, nominative, genitive, recipient, patient, theme, rheme, reciprocal, comitative. Associative, benefactive, recipient, stative verb, active verb.

To find the definitions, explanations and exemplifications of these terms and concepts, please Google these words or use any search engine for the online references or consult linguistic dictionaries.

Section 2: Linguistic Theory

Linguistic theory in the modern sense has received its impetus from the seminal work done within the framework of *generative grammar* since the mid 1950's. A good theory should exhibit at least four basic properties:

- 1) *Economy*,
- 2) *Simplicity*,
- 3) *Generality*, and
- 4) *Falsifiability*.

Furthermore a theory must be adequate on three levels: that of *observation*, of *description* and of *explanation*. Different levels of language have been subject to theories in the second half of the 20th century.

In particular, *phonology* and *syntax*, because of their abstract and formal properties, have attracted linguists of a theoretical persuasion. There is no generally accepted theory of *semantics* because the data is somewhat too diffuse and fuzzy-edged. And as regards *morphology* one can note that it is usually treated as subordinate to syntax (at least in generative theories).

Section 3: (English) Morphology and Syntax

Phonetics and phonology have to do with how the sounds of language are produced in the human vocal organs (lungs, larynx, mouth, nasal cavity), and how sounds are systematically organized in particular languages. **Morphosyntax** has to do with how these sounds combine to form words and sentences. **Semantics** has to do with the meanings of individual elements of linguistic structure and their combinations.

Actually, the term “**morphosyntax**” is a hybrid [=crossbreed] word that comes from two other words – **morphology** and **syntax**. Since “**morphosyntax**” sounds better than “**syntophology**,” the former is the word that linguists prefer to use.

(English) Morphology is simply the study of shapes. For example, *zoologists* may study the morphology of camels – how their bodies are shaped. Different species of camels have different body shapes. Some have one hump and others have two.

Morphology in linguistics has to do with how words are shaped, and how the shapes of words may be systematically adjusted in order to accomplish communicative tasks. You can also think of morphology as the study of how meaningful units combine to shape words.

(English) Syntax, on the other hand, is how words combine to form sentences.

One reason many linguists like to talk about **morphology and syntax** together is that sometimes a communicative job that is performed by word shapes (morphology) in one language is performed by combinations of words (syntax) in another.

So if linguists want to compare different languages, it helps to be able to refer to “**morphosyntax**.”

In **English** the situation is quite different.

In **English**, the way a speaker communicates who is acting and who is being acted upon is mostly word order. Consider these examples:

- (6) a. Zarina taught Aileron.
- b. Aileron taught Zarina.

These sentences do not mean the same thing, even though the shapes of all the words are identical. The difference in meaning is expressed only by the order of the words. Therefore we say that the job of identifying the actor in English is accomplished syntactically.

Syntactic structure certainly affects morphology, and morphology is one very important way that syntactic structure is revealed. The main ideas to keep in mind to this point are:

- Language is a tool for communication; therefore structural similarities among unrelated languages can, in most cases, be attributed to common communicational functions.
- Languages can accomplish the same or similar communicative tasks by changing the shapes of words (morphologically) or by changing how words are arranged (syntactically).

(Source: All above about “Morphology and Syntax” are from: Thomas, E. Payne (2006) *Exploring Language Structure: A Student’s Guide*. Cambridge, Cambridge University Press, New York.

Section 4: Morphology

Morphology (Greek *morphe* – form; *-ology* – science of) is the study of the internal structure of words and of the rules by which words are formed. Thus, the

meaning morphology is 'the science of word forms.' (Fromkin: 2003) In other words, Morphology is the words of language; it is the study of the structure of words, including the rules of word formation. It comes from a Greek word meaning 'shape' or 'form' and is used in linguistics to denote the study of words, both with regard to their internal structure and their combination or formation to form new or larger units.

The word **antidisestablishmentarianism** is believed to be the longest word in English. However, according to Webster, it is **pneumonoultramicroscopicsilicovolcanokoniosis**, which is a disease of the lungs.

Mental lexicon has each word we know listed with its unique phonological representation / pronunciation, meaning, orthography (spelling), and grammatical category / syntactic class

Types of Word

Content words vs. Function Words (or Grammatical Words)

The Morphology is concerned with the study of word forms/ Word types. It is the analysis of the Word Structure, the Main Divisions of Word Classes: **Content Words** and **Function Words** (Parts of Speech) illustrated in the following table:

Content Words	➤ Nouns (N)
	➤ Verbs (V)
	➤ Adjectives (A)
Function Words	❖ Conjunctions (Conj.)
	❖ Prepositions (P)
	❖ Articles (art.)/Determiners (D)

Also, observe the following table:

Content words	Function words (or Grammatical Words)
Words have concrete meanings such as <i>cat, dog, eat, run, beautiful</i> , and <i>unsightly</i> (i.e. have a semantic content).	Words do not have concrete meanings but only provide grammatical functions . For examples, <i>in, on, the, a</i> , and <i>if</i> are function words in English.
Concreteness in meaning	Abstractness in meaning

Infrequency: an individual content word is less frequently used, compared with function words	Frequency: an individual function word is used more frequently than a content word
Open Class: Content words are open to new members; that is, we can easily create content words.	Closed class: Function words seldom get new members; that is, it is very difficult to create a new function word.

The Lexical Content Words constitute the major word classes. Their membership is open. Open-class words (nouns, adjectives, verbs, and adverbs). New words can be added (e.g., download as a verb). The **Function or Grammatical Words** have some syntactic function. They are closed-class words (articles, prepositions, conjunctions, pronouns). The differences can be noted as follows:

- Content words can be added to but not function words
- Content words are switched in slips of tongue but not function words.
- Content words are easier to learn by brain-damaged patients.
- Content words have a meaning on their own but not function words.
- The distribution of function words is more predictable.
- Function words have a grammatical function but not content words.

Simple Words vs. Complex Words

Simple words are words that **cannot be broken down into smaller parts** (e.g. *cat*, *amuse*); **complex words** are words that are composed with **more than one part** (e.g. *cat-s*; *amuse-ment*)

Parts of Speech (or Word Classes)

This term refers to the classes words in the grammar such nouns (e.g. *teacher*), verbs (e.g. *teach*), adjectives (e.g. *big*), adverbs (e.g. *quickly*), preposition (e.g. *in*, *on*), articles (e.g. *a*, *the*), etc. We will have more discussion on these classes in the topic of **syntax** (the study of sentence structure and formation).

Words and Morphemes

Words

A Word is the smallest free form. It is a term in common everyday use but one which linguists cannot easily define. A word is best defined in terms of internal

stability (is it further divisible?) and external mobility (can it be moved to a different position in a sentence?). Is “isn't,” for example, “one word or two words?” and, “how about mother-in-law?” It denotes one concept but is formed out of three recognizable 'words': mother, in and law. The word is simple and complex, for instance, **hunt** and **hunter**. Linguists, therefore, prefer other terms, referring to **morphs**, **morphemes** and **lexemes** when talking about 'words'.

Morphemes

A **morpheme** is the **smallest unit of meaning** in a word. A simple word is composed of only one morpheme. It is the smallest and indivisible meaningful unit of a grammatical or linguistic form.

Morphemes are defined as the smallest meaning-bearing units in language. These are abstract units, realized in actual language by a **morph**, or if there are various ways of realizing one morpheme by its **allomorphs**. If morphemes are **free** they will coincide with what we call a word, but morphemes can also be **bound** in which case they are less than a word (although they carry meaning). The free morphemes are generally also referred to as **lexemes**, and the bound ones as **affixes**. (Note that lexemes can be simple i.e. consisting of just one free morpheme or complex consisting of 2 or more morphemes of which at least one is free.) Affixes which come in front of a free morpheme are **prefixes**, and those which come after are **suffixes**.

Classification of Morphemes

Morphemes can be classified according to whether they are **bound** or **free** and furthermore **lexical** or **grammatical**. The following table illustrates the free morpheme vs. bound morpheme:

Free Morpheme vs. Bound Morpheme	
Free Morpheme: morphemes can occur by themselves (e.g. <i>house</i>) <i>Note:</i> A word may consist of two or more free morphemes (e.g. <i>mailbox</i> , <i>makeup</i> , <i>download</i>).	
Bound Morpheme: Morphemes that cannot occur by themselves (<i>un-</i> of <i>unpleasant</i>). They are also referred to as affixes.	prefix: an affix that attaches to the beginning of
	suffix: an affix that attaches to the end of a word.

	infix: an affix that appears in the middle of a word. Bontoc (a Philippine language) : fikas ‘strong’ f-um-ikas ‘to be strong’ kilad ‘red’ k-um-ilad ‘to be red’ fusul ‘enemy’ f-um-usul ‘to be an enemy’ English: fan-freakin’-tastic, in-freakin’-credible
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More Examples of Simple Morphemes vs. Complex Morphemes (bm = bound morpheme):

- Fly → Simple, no bm, fly
- Desks → Complex, -s, desk
- Untie → Complex, un-, tie
- Tree → Simple, no bm, tree
- Dislike → Complex, dis-, like
- Reuse → Complex, re-, use
- Triumphed → Complex, -ed, triumph
- Delight → Simple, no bm, delight
- Justly → Complex, -ly, just

Grammatical Morphemes

In relation to **derivational morphology (see below)**, we could assert that certain morphemes such as **-ness** or **-ment** have meaning only when combined with other morphemes in a word: **kindness** and **agreement**.

Likewise, there are morphemes that have ‘meaning’ only when used with other words in a sentence. In the sentence ‘The car of John is new’, what is the meaning of **of**?

The function word **of** has a strictly grammatical meaning or function in the sentence. It does not have any clear lexical meaning or concept associated with them. It’s in the sentence because it is required by the rules of sentence formation – the syntax (see separate topic).

Of in relation to the noun (John) has the grammatical function showing possession or ownership. Similarly, **to** in the sentence ‘**She likes to eat ice-cream**’ functions as an infinitive marker of the verb **eat**.

Different morphemes serve different purposes. Some create new words by either changing the meaning: **just** ~ **unjust**, both adjectives; **dark** ~ **darken**, an adjective to a verb. Other morphemes add information: **dance** ~ **danced**.

Base, Root and Stem

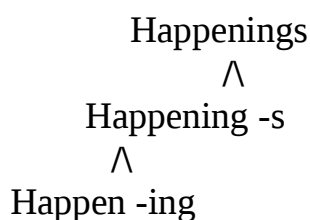
A complex word usually composed of a base and an affix. The base sometimes is also referred to as **root, or stem**.

A Base is the form to which an affix is added.

A Root is a base that cannot be decomposed any further.

A Stem is a base that can be further decomposed.

Now observe the following analysis of happenings:



happenings “happening” is the **stem** and **base** of -s.

happening –s “happen” the **root** and **base** of -ing. Happen –ing

Inflectional Morphology

Morphology can further be divided into **Inflectional Morphology** (IM) that is concerned with the endings put on words.

Inflectional Morphemes

Function-words like *to* and *of* are free morphemes. Many languages including English have bound morphemes that have a strictly grammatical function. These bound morphemes, involving tense, number, case, gender and others, are called **inflectional morphemes**.

The syntactic category of the words or morphemes to which they are attached never change. Look at these examples:

(1) I play basketball in the park.

- (2) He plays basketball in the park.
- (3) Rey played basketball in the park.
- (4) Rey has played basketball in the park.
- (5) Rey is playing basketball in the park.

Analysis

In sentence (2) the **-s** at the end of the verb is an agreement marker (subject '**He**' of the verb is 3rd person singular, present tense). It doesn't add lexical meaning. The suffix **-ed** (4) indicates past tense, and is also required by the syntactic rules of the language when verbs are used with **have**, just as **-ing** (5) is required when verbs are used with forms of **be**.

English is no longer a highly inflected language. But we have other inflectional endings such as the plural suffix, which is attached to certain singular nouns, as in **boy/boys** and **cat/cats**. At the present stage of English history, there are a total of 8 bound inflectional affixes (Fromkin: 2003):

In the following table designed by the author of this course handout the English Inflectional Morphemes are illustrated:

English Inflectional Morphemes			
No.	Word Class	Inflectional Morpheme	English Examples
1.	Nouns	-s plural	Tom ate the bananas last night.
2.		- 's possessive	Carmen 's car is new.
3.	Verbs	-s 3 rd person singular present	She learns fast.
4.		-ed past tense	She learned fast.
5.		-en past participle	She has eaten the bananas.
6.		-ing progressive	She is eating the banana.
7.	Adjectives	-er comparative	Hassan has newer car than Malik.
8.		-est superlative	Abdullah has the newest car.

Derivational Morphology

Morphology can further be divided into **Derivational Morphology (DM)** that involves the formation of new words. Derivational Morphology refers to the study of derivational morphemes. Bound morphemes, like **-ing** and **-able**, are called **derivational morphemes**. When they are added to a root morpheme, a new word with a new meaning is derived.

The addition of **-ing** to *read* → *reading* means 'the act or process of reading' and the addition of **-able** → *readable* – means 'something that could be read.' The

Category or Meaning Change Derivational affixes change the grammatical category (part of speech)* or the meaning of the base. e.g. season (<i>Noun</i>) season-al (<i>Adjective</i>) king king-dom (meaning change)	No category change or meaning change Inflectional affixes do not change the grammatical category (part of speech) or the meaning of the base. e.g. smart (<i>Adjective</i>) smart-er (<i>Adjective</i>) book (<i>Noun</i>) book-s (<i>Noun</i>)
Not productive (i.e. more restricted in the combination with other forms) Derivational affixes are selective about the form that they will combine with. e.g. the suffix <i>-hood</i> does not combine with all nouns (<i>neighbor-hood</i> , but not <i>*friend-hood</i>)	Very productive (i.e. relatively free in the combination with other forms) Inflectional affixes can occur with almost all the members of the appropriate category. e.g. the plural suffix <i>-s</i> can occur with almost all the (countable) nouns
Appearing before inflectional affixes in a word e.g. <i>neighbor-hood-s</i> but not <i>*neighbor-s-hood</i>	Appearing after a derivational affix in a word Word Inflectional morphemes occur the margin of a word. In English, an inflectional suffix can not be followed by other suffixes. e.g. formal-iz-abil-ity formal-iz-abil-iti-es
Prefixes or suffixes (in English) e.g. <i>pre-arrange</i> and <i>arrange-ment</i>	Suffixes only (in English) eight inflectional suffixes in English.

Exercise: In the table below, the italic affixes are described as derivational or inflectional affixes, identify if it is true or false such description:

1.	<i>Impossible</i>	1.		Derivational prefix
2.	<i>Terrorized</i>	2.		Inflectional suffix
3.	<i>Terrorize</i>	3.		Derivational suffix
4.	<i>Desks</i>	4.		Inflectional suffix
5.	<i>Dislike</i>	5.		Derivational prefix
6.	<i>Humanity</i>	6.		Derivational suffix
7.	<i>Fastest</i>	7.		Inflectional suffix
8.	<i>Premature</i>	8.		Derivational prefix
9.	<i>Untie</i>	9.		Derivational prefix
10.	<i>Darken</i>	10.		Derivational suffix
11.	<i>Fallen</i>	11.		Inflectional suffix

12.	Oxen	12.		Inflectional suffix
13.	Faster	13.		Inflectional suffix
14.	Lecturer	14.		Derivational suffix

Morpheme and Allomorph

An **allomorph** is a non-distinctive realization of a morpheme. In other words, an **allomorph** is any of two or more alternative forms of a morpheme (/s/ and /-es/ forms of the plural morpheme as well as present-simple-tense-morphemes. The words **keys** and **buses** are broken into the root [**key** and **bus**] and the plural morphemes -s and -es, respectively. The verbs **asks** and **watches** are broken into the root [**ask** and **watch**] and the present-simple-tense-morpheme -s and -es, respectively. **Morphemes** are pairings of **sounds** with **meanings**, not spellings. The plural morpheme -s in *cat-s* and *dog-s* are spelled with the same letter, but does it sound the same in the two words?

Different pronunciations (i.e. **phonetic forms**) of the same morpheme are called **allomorphs**. For example, [s] in *cat-s*, [z] in *dog-s*, and [ɪz] in *church-es* are allomorphs of the same plural morpheme.

Discovering **allomorphs** shows an interaction of **morphology and phonology**:

Example 1: English Plural Allomorphs

Example 2: Homorganic nasals of the *in-* negative prefix in English

Example 3: English Past Tense Suffix -ed

Hierarchical Structure of Words:

The process of combining an affix and a stem is performed in a certain order, just as in → arithmetic: 3 x 2 + 4

Two facts about the ways affixes join with their stems:

1. Affixes most of the time only combine with stems of the same part of speech.

Q: Consider the examples with -ize: **unionize**, **terrorize**, **hospitalize**,
 What is the part of speech of the parts that -ize attaches to? Can we have words like *killize* and *smartize*?

2. The words formed by the addition of a given affix to a stem or morpheme

normally belong
 to the same part of speech.

Q: What is the part of speech of *crystallize* and *magnetize*?

There are three possible ways to form the word *unusable*:

No.	Processes
1.	The word is formed in one step : un + use + able
2.	The word is formed in two steps : (1) un + use → unused (2) unused + able → unusable
3.	The word is formed in two steps : (1) use + able → usable (2) un + usable → unusable

Which one is more plausible? Why?
 What about *reusable*?

Sometimes, a given affix may attach to more than one part of speech.

Q: How many pre-s do we have?

Another similar example: **How many un-s do we have?**

Examples of pre-:	Process	Meaning of pre-
Preexist, predetermine, predefine, predecide...	pre- + Verb	
Preseason, pregame, prewar, predawn...		
Prehistoric, prefrontal, predental...		

Two hierarchical structures of *unlockable*: → ***un [lockable] adjective*** vs. ***[unlock] verb able***

To describe affixes we have to specify:

The part of speech they apply to; the part of speech of the stem/word that will be derived, and their effect on the meaning or function of the root/stem.
 This is crucial whether we are dealing with a single affix or more.

Some Reminders:

A morpheme may have more than one phonetic realization. Do not be tricked by the orthography: *-er, -or, -ar*: speaker, advisor, and liar. Pay attention to the **sound**. Sometimes the same sound corresponds to different morphemes (e.g. English *-s* and *-er*).

Affixations

An **Affixation** is the process of attaching an **inflection** or, more generally, a **bound morpheme** to a word. This can occur at the **beginning** or **end** and **occasionally** in the **middle** of a word form.

One of the things we should know about morphemes is whether they can stand alone or whether they must be attached to a host morpheme.

The morphemes above: *boy, desire, gentle, and man* may constitute words by themselves and these are **free morphemes**. Thus, *free morphemes* can stand alone (*teach* in teacher).

Other morphemes like *-ish, -ness, -ly, dis-, trans-* and *un-* are never words by themselves but are always parts of words and these affixes are **bound morphemes**. Thus, *bound morphemes* occur only in conjunction with others (*-ing, -est*). Bound morphemes occur as **affixes**. There are various types of affixes illustrated as follows:

1) Prefixes:

A prefix is an affix that is attached to the front of a base. In English, examples of prefixes are: **re-**write**un-**happy, and **pre-**history, etc., which occur before other morphemes. Let us observe some examples of prefixes from other languages: In **Arabic**, for the morpheme (root-word) katab ‘wrote, we can have the prefix **ma-** (**ma-**katab “desk/office”, **ma-**ktuub “written”). In **Filipino**, for the morpheme (rootword) laro “play”, we can have the prefix **ka-** (**kalaro** “playmate”).

2) Suffixes:

A suffix is an affix that is attached to the end of a base. In English, some morphemes of suffixes are: happy**-ness**, teach**-ing**, teach**-er**, journal**-ist**, happi**-ly**, etc. Let us observe some examples of suffixes from other languages: In **Arabic** Language, for the morpheme (root-word) katab “to write” we can have the suffix **-ah** (**ma-katabah** “library/bookshop”) or from kaatib “male writer” we can have

kaatib-**ah** “female writer”. In **Filipino**, for the morpheme (rootword) laro “play”, we can have the suffix **-an** (laruan “toy”).

3) Infixes:

An infix is an affix that occurs within a base, e.g. (in Indonesian) s-**in**-ambung. Some languages also have infixes, morphemes that are inserted into other morphemes. **Filipino** is such a language, as illustrated by the following:

Morpheme (Noun)		Verb	
ganda	“beauty”	gumanda	“to become beautiful”
lakas	“strength”	lumakas	“to become strong”

In this language, the infix **-um-** is inserted after the first consonant of the noun. Thus, a speaker of Filipino who learns that yaman is ‘wealth,’ would understand the meaning of **yumaman**, ‘to become rich,’ on hearing the word for the first time, just as an English speaker who learns the verb sing would know that singer is ‘one who sings.’ A Filipino speaker who knows that **bumigat** means ‘to become heavy’ would know that the noun ‘weight’ must be bigat.

4) Circumfixes:

A circumfix is an affix that is attached to the front and to the end of a base simultaneously, e.g. (in Indonesian) **ke-lapar-an**. **Circumfixes** are morphemes that are attached to another morpheme both initially and finally, and are also called discontinuous morphemes. Examples in English are:

teach	un-teach-able
definite	in-definite-ly
form	trans-form-ation
courage	dis-courage-ment
conscious	pre-concious-ness

Examples of this circumfixing in **Filipino** are:

bigay “give”	magbigayan (mag-... -an)	“to give each other”
luto “cook”	pinaglutuan (pinag-... -an)	“ware used for cooking”
balik “return”	pabalikin (pa-... -in)	“to order someone back”

Homework (Group Assignment):

0. Define and give examples of the four types of affixes: prefix, suffix, infix, and circumfix. Examples can be derived from English and Arabic.

1. List English prefixes which are NOT mentioned above. Determine the word class and give eight examples for each prefix.
2. List English Suffixes which are NOT mentioned above. Determine the word class and give eight examples for each suffix.

Note: (The answers to be presented by each group next week (prepare a PPT file)).

For Checking Answers: Read the article: Prefixation and Suffixation in A Comprehensive Grammar of the English Language. By: Randolph Quirk, et.al, 1985. pp. 1540–1558 and read the research papers about Morphology and Syntax of English and Arabic which are attached with this handout.

Lexical Morphology (Word Formation)

Lexical Morphology deals with the **Word Formation** processes that can be productive or lexicalized / non-productive. There are different **types of word-formation** such as compounding, conversion (zero derivation), clipping, blending, backformation, acronyms, abbreviations, coinage and eponyms, etc. These processes of word formations are illustrated as follows:

1. Compounding (word + word):

Definition: Compounding is a process of word formation that refers to the two or more words joined together to form a new word. For examples: *girlfriend*, *looking glass*, *man-made*, and *hanger on* The primary stress of a compound always falls on the first word. The meaning of a compound is not always predicable from its components. Compare *boathouse*, *Redcoat*, and *hotdog*. How to determine the part of speech of a compound? Here are some general rules:

a) when two words of the same part of speech form a compound, the compound will also have this part of speech, e.g. *bittersweet*, *sleepwalk*, *rainbow*.

b) When two words of different parts of speech form a compound, the compound will have the same part of speech of the second or the last word, e.g. *headstrong*, *poorhouse*, *spoonfeed*, *carryall*.

c) Compounds formed with a preposition have the part of speech of the non-prepositional part of the compound, e.g. *hanger-on*, *sundown*, *downfall*, *overtake*.

2. Blending (part of a word + part of a word):

Definition: Blending/Blends is a process of word formation that refers to the similar to compounds, but parts of the words are deleted.

For Examples:

Motor + hotel → Motel
 Breakfast + lunch → Brunch
 Wireless + Fidelity → Wi-Fi

More examples of Blends or blending are as follows: *motel* (*motor* + *hotel*), *cybrary* (*cyber* + *library*) and *brunch* (*breakfast* + *lunch*)

3. Acronym:

Definition: Acronym is a process of word formation that refers to forming a new word by combining the initials of different words, e.g. *scuba* (*self- contained underwater breathing apparatus*), *RAM* (*random access memory*), *TLC* (*tender loving care*), *ER* (*emergency room*).

Other examples on *acronyms* are demonstrated in the following table:

Other examples of Acronyms	
Radar	Radio detecting and ranging
FYI	For Your Information
TGIF	Thanks God It's Friday
a.k.a	also known as
Html	Hypertext mark-up language
www	World wide web
SWOT	Strengths, Weaknesses, Opportunities and Threats
Radar	Radio detecting and ranging

4. Clipping:

Definition: Clipping is a process of word formation that refers to the shortening a polysyllabic word by deleting one or more syllables.

Examples:

Facsimile → fax
 Hamburger → burger

Gasoline → gas
Advertisement → ad

In other words, clipping is a process of forming a new word by shortening the **spoken form** of a word and a compound, e.g. *lab* (from *laboratory*), *fridge* (from *refrigerator*), *flu* (from *influenza*), *floppy* (from *floppy disk*), *hifi* (from *high fidelity*).

5. Abbreviation:

Definition: Abbreviation is a process of word formation that refers to Forming a new word by shortening the written form of a word or a compound, e.g. *prof.* (for *professor*), *Tex.* (for *Texas*), and *Dr.* (for *doctor*), *bsmt* (for *basement*)

6. Reduplication:

Definition: Reduplication is a process of word formation that refers to forming new words by repeating an entire word or part of it.

- 1) Total Reduplication: In Indonesian, *ruman* means 'house' and *rumanruman* means 'houses'; in Arabic *bal* 'to wet' and *balbal* 'to wet again and again'.
- 2) Partial Reduplication: In Amis, *pawli* means 'banana', and *pawliwli* means 'every bunch of banana'

7. Morpheme-internal Change:

Definition: Morpheme-internal Change is a process of word formation that refers to Creating new words through morpheme-internal modifications, e.g. *goose-geese*, *ring-rang-rung* and *strife-strive* in English. It sometimes combines with affixation, e.g. *break-broke-broken*, *bite-bit-bitten*,

8. Suppletion:

Definition: Suppletion is a process of word formation that refers to marking a grammatical contrast by replacing a morpheme with an entirely different morpheme, e.g. *am-was*, *go-went* in English.

9. Conversion

Definition: Conversion is a process of word formation that refers to the assigning an already existing word to a new syntactic category.

Examples:

butter (N) → to butter the bread
permit (V) → an entry permit
empty (A) → to empty the litter-bin

10.Zero Derivation:

Definition: Zero Derivation is a process of word formation that Deriving a new word without any change of the form. (E.g. email (noun and verb; record (noun and verb)

11.Back-formation:

Definition: Back formation is a process of word formation that refers to the creative reduction due to incorrect morphological analysis.

Examples:

editor (1649) → edit (1791)
television (1907) → televise (1927)

In other words, backformation is a process of forming a new word through incorrect morphological analysis, e.g. *edit* from *editor*, *peddle* from *peddler*, *cheeseburger* from *Hamburger*.

12.Coinage

Definition: Coinage is a process of word formation that refers to the construction and addition of new words into the language. They become the generic names though originally product names (e.g., Kleenex, Xerox, Vaseline).

Affixation (free morpheme + affix): *unhappy*, *blacken*, *sumulat* ‘to write’ in Tagalog (from *sulat* ‘write’), *mudarris-ah* “a female teacher” in Arabic (from *mudarris* “a male teacher”).

13.Eponyms

Definition: Eponyms is a process of word formation that refers to the words derived from proper names or things.

Examples:

Kodak
Sandwich

Celcius

Complete the process and identify the type of word formation in the following table:

1. Return on Investment	ROI →	Acronym
2. information, entertainment	Infotainment →	Blending/Blends
3. modulator, demodulator	Modem →	Blending/blends
4. love, seat	Loveseat →	Compounding
5. International, police	Interpol	Blends
6. A comb	To comb →	Conversion
7. delicatessen	Deli →	Clipping
8. Capt. Charles Cunningham Boycott	Boycott →	Eponym

Procedure for Doing Morphological Analysis

Given a set of data in phonetic representation, how can we identify each morpheme, its meaning and type?

What kinds of things are coded by grammatical morphemes?

Languages differ among themselves in terms what are marked morphologically:

Steps	Examples	
1. Isolate and compare partially similar forms.	Classic Greek: [grap ^h ɔ:] 'I write' [grap ^h e:] 'he writes' [p ^h ɛ:mi] 'to speak'	Hungarian: [hɔz] 'house' [borɛ] 'wine' [ɜ jhɔz] 'a house' [ɛjbor] a wine ' [hɔzɔ] 'his/her house' [borɔ] 'his/her wine'
2. If a single phonetic form has two distinctive meanings, it must be analyzed as representing two morphemes.	English: work-worker big-bigger sing-singer small-smaller sail-sailor long-longer lie-liar smart-smarter	

3. If the same meaning is associated with different phonetic forms, these different forms all represent the same morpheme; they are allomorphs of the same morpheme.	English: imbalance [ˌɪmˈbæləns] inability [ɪnəˈbɪləti] incomplete [ˌɪnkəmˈplɪːt]
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Morphological Types of Languages

Languages are often classified according to the way in which they put morphemes to form words.

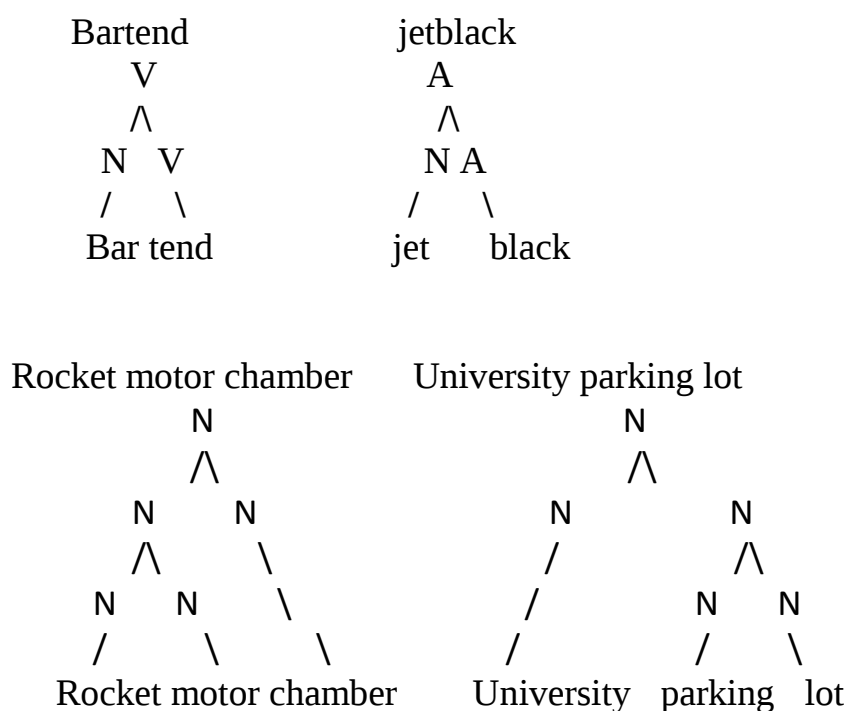
Language Types	
Analytic Languages: In purely analytic languages each word consists of a single morpheme. (No affixes). <i>e.g. Mandarin</i>	
Synthetic Languages: In synthetic languages, affixes or bound morphemes are attached to other morphemes. That is, one word consists of more than one morpheme.	Agglutinating Languages: In this type of languages, morpheme boundaries are rather clear (easy to separate morphemes). <i>e.g. Hungarian</i>
	Fusional Languages: In this type of languages, morpheme boundaries are not clear; that is, it is difficult to separate morphemes in fusional languages. Furthermore, a single morpheme may convey several meanings simultaneously. <i>e.g. Spanish</i>
	Polysynthetic Languages: In this type of languages, several stems (along with their affixes) may be combined into a single word. <i>eg. Sora</i>

Morphological Rules

Morphological Rules are rules of word formation. Looking over the discussion so far, we can see some basic patterns of morphological rules. Let us review some of them. If we consider compounding/compounds first, we notice a remarkable pattern using “**brackets**” to show how these words are formed:

[V [N bar] [V tend]] → bartend
 [N [N apple] [N pie]] → apple-pie
 [A [N jet] [A black]] → jetblack
 [N pl. [N sg. part] [N pl. suppliers]] → part suppliers
 [N sg. [N pl. parts] [N sg. supplier]] → parts supplier
 [N [N [N rocket] [N motor]] [N chamber]] → rocket motor chamber

Instead of using brackets to show how these words are formed, it is often easier to use “**tree-diagrams**”, like this:



These trees are upside down: the point at the **top** is the **root**; along the **bottom** we have the pronounced **leaves**. The root, the leaves, and the **other labeled constituents** in the tree are called **nodes** of the **tree**. There is always just one root, and the branches never cross. Notice that the different structures of the last two examples, what modifies what, is figured out by considering what makes the most sense.

Another basic thing we see is that the roots combine in pairs. The pairs we see

here can be described with rules like the following (this rule format is not presented in the text):

$V \rightarrow N V$

$N \rightarrow N N$

$A \rightarrow N A$

There is **regularity** here. All of these rules have the morphological form:

$X \rightarrow Y X$

This regularity in English compounds is described as follows: (1) In English, the **rightmost** element of a compound is the **head**; and (2) A **compound** word has the **category** and **features** of its **head**. This is called the **English Right Hand Head Rule** or the **Head-Final Principle**

There is an analogous/similar way to write **affixation rules**. The important thing to notice is that the head-final rule in compounds predicts some of the patterns we see in **affixation**: (1) an English suffix often changes category, but prefixes rarely do; and (2) the conditions on affixation typically refer to the just the last suffix. The conditions for attaching a suffix never refer to the root, which may seem surprising to a non-linguist, since, intuitively, it is usually the root that provides most of the meaning of the word.

How can we exploit this insight that affixes and compounds both seem to have their properties determined by their **right-hand** members? Well, we can just suppose that **affixation** structures are **head-final** too. Then, considering the most productive affixes first, we can use rules like the following to describe their requirements and their effects:

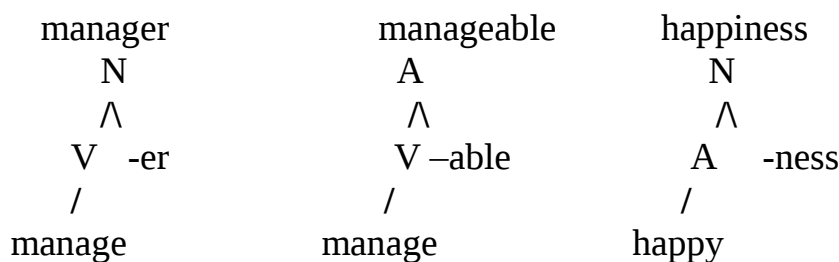
$N \rightarrow \text{-er} / [V]$ (manager)

$A \rightarrow \text{-able} / [V]$ (manageable)

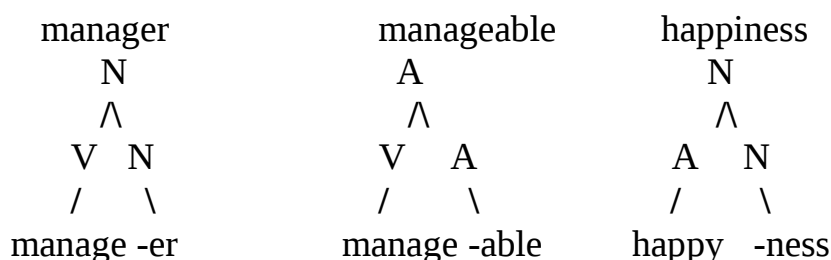
$N \rightarrow \text{-ness} / [A]$ (happiness)

The first rule says that the N -er is allowed when it can form a complex with a verb. And by the **head-final rule**, we know that the resulting complex will be a noun N. We read the other rules similarly. We can draw the resulting structures with trees.

For affixation structures, let us presents trees or tree-diagrams like the following:



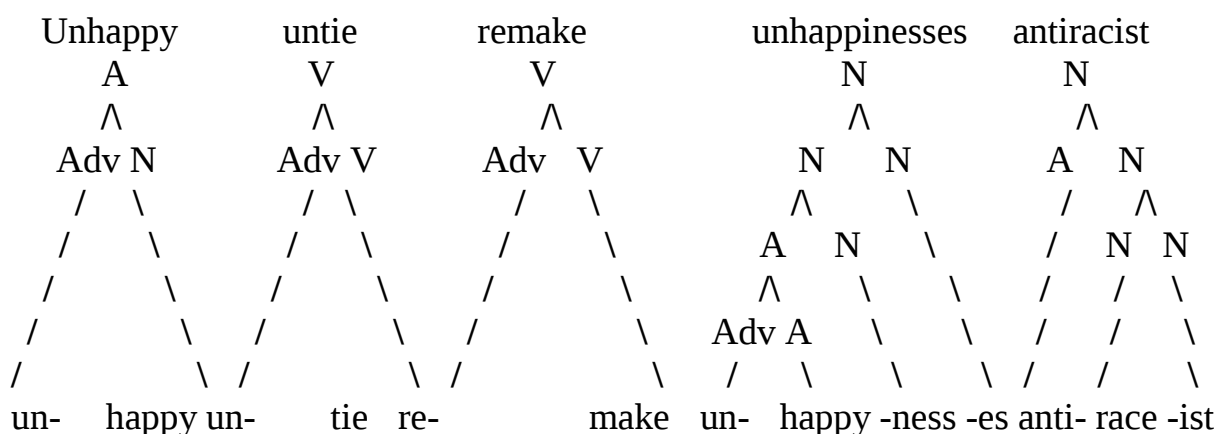
But if we use the rules given above, then **INSTEAD**, we can provide categories for the affixes, conforming to the English head-final rule:



Prefixes in English tend not to be category changing, but rather just modifiers. So if we had to assign categories to them, we could observe the following:

1. **A** modifies **N**, as in happy day
2. **Adv** modifies **V**, as in he completely finished
3. **Adv** modifies **A**, as in completely happy

So we could assign trees or tree-diagrams like these to prefix structures:



These trees conform to the same **generalization** that we had for compounds: the right **sister** determines category. In fact, applying the head-final rule to each of the affixes in our first example sentence, we obtain a category for all of the suffixes:

D N N V V P V N A Adv P D N N
 The friend -s promis -ed to ask care -ful -ly about a school-master

P D A N
 For the fair Fatimah

Summary of Morphology

Morphology is concerned with the study of word forms. A *word* is best defined in terms of *internal stability* (is it further divisible?) and *external mobility* (can it be moved to a different position in a sentence?).

A *morpheme* is the smallest unit which *carries meaning*. An *allomorph* is a *non-distinctive* realisation of a morpheme.

Morphology can further be divided into *inflectional* (concerned with the endings put on words) and *derivational* (involves the formation of new words).

Affixation is the process of attaching an inflection or, more generally, a bound morpheme to a word. This can occur at the beginning or end and occasionally in the middle of a word form.

Morphemes can be classified according to whether they are *bound* or *free* and furthermore *lexical* or *grammatical*.

Word formation processes can be either *productive* or *lexicalized* (non-productive). There are different types of word-formation such as *compounding*, *zero derivation* (conversion), *back formation* and *clipping*.

For any language the distinction between *native* and *foreign* elements in the lexicon is important. In English there are different affixes used here and stress also varies according to the historical source of words.

(Source: Raymond Hickey The Neat Summary of Linguistics P. 13)

Section 5: Summary of Lexicology

Lexicology investigates the internal structure of the **lexicon**. **Lexicography** concerns the compilation of dictionaries. **Etymology** is about the historical development of word meanings.

A **lexeme** is the minimal distinctive unit in the semantic system of a language. A

lexical set is a group of forms which share a basic meaning. A **lexical gap** is a missing item in a language's lexicon and lexical selection concerns what words can combine with what others, e.g. what nouns are permissible with what verbs.

A **word field** is a collection of words which are related by a common core of meaning, such as furniture, plants, colors, and the instruments of an orchestra or whatever.

Section 6: Syntax

Syntax originates from the Greek words *syn*, meaning 'together' and *taxis*, meaning 'sequence/order'.

Syntax concerns the possible arrangements of words in a language. The basic unit is the sentence which minimally consists of a main clause (containing at least a subject and verb).

In linguistics, **Syntax** the study of the rules, or "patterned relations", that govern the way the words in a sentence are arranged. It concerns how different words (nouns, adjectives, verbs, etc.) are combined into clauses, which, in turn, are combined into sentences.

Any speaker of a human language can produce and understand an infinite number of sentences. We can show this quite easily through examples such as the following (Fromkin: 2003):

- 1). *The cat chased the mouse.*
- 2). *The cat chased the mouse that ate the cheese.*
- 3). *The cat chased the mouse that ate the cheese that came from the cow.*
- 4). *The cat chased the mouse that ate the cheese that came from the cow that grazed in the field.*

The speaker could continue creating sentences by adding an adjective, or a noun connected by *and*, or a relative clause. Thus, this could go on forever since all languages have mechanisms such as these – modification, coordination, and clause insertion – that make the number of sentences limitless.

Part of what is meant by structure is word order. The meaning of a sentence depends largely on the order in which words occur in a sentence. Thus,

Mary bought what John needs. vs. *Mary needs what John bought.*

Thus, *syntax* refers to the structure of sentences and the rules that govern the correctness of a sentence. English, like all languages, has generally accepted patterns for sentences.

Sentences are composed of morphemes, but sentence meaning is more than the sum of the meaning of the morphemes. The sentence, '*The girl gave the flower to a friend*' has the same morphemes as '*A friend gave the flower to the girl.*' But not the same meaning; and the string of morphemes '**gave the the to girl a friend flower*' has no linguistic meaning.

There are rules in one's grammar that determine how morphemes and words must be combined to express a specific meaning. These are the syntactic rules of the languages.

To conclude, **Syntax** is the study of **the principles that govern the organization of words into phrases and sentences**. Words are not put randomly into sentences. They are arranged according to **principles or syntactic rule**.

The Analysis of Sentence Structure: Grammatical or Ungrammatical

How do we know we have the knowledge of syntax? We can make a judgment on the grammaticality of the sentences that we have not previously encountered:

- a. Some students annoyed the teacher. (Grammatical, well-formed)
- b. Annoyed teacher some the students. (Ungrammatical, ill-formed)
- c. Some green beans annoyed the book. (?)
- d. Some students annoyed the teacher with a stick.

While every sentence is a sequence of words, not every sequence of words is a sentence. Sequences of words that conform to the rules of syntax are *well-formed* or *grammatical*, and those that violate the syntactic rules are *ill-formed* or *ungrammatical*.

- 1). *The boy found the ball*
- 2). *The boy found quickly*
- 3). *The boy found in the house*
- 4). *The boy found the ball in the house*

To be a sentence, words must conform to specific patterns determined by the syntactic rules of the language.

Syntactic knowledge goes beyond being able to decide which strings are

grammatical and which are not. It accounts for the multiple meanings, or ambiguity, of expressions. Many sentences exhibit such ambiguities, often leading to humorous results. Consider the following classified ad:

For sale: an antique desk suitable for lady with thick legs and large drawers.

Because these ambiguities are a result of different structures, they are instances of structural ambiguity.

Syntactic knowledge also enables us to determine the grammatical relations in a sentence, such as *subject* and *direct object*, and how they are to be understood. Consider the following sentences:

- 1). *Will taught Liza.*
- 2). *Liza taught Will.*
- 3). *Will was taught by Liza.*

Analysis:

In (1) *Will* is the subject and is assumed to be the '*teacher*' *who did the teaching*. *Liza* is the direct object and is understood to be the '*student*'.

In (2) *Liza* is the subject and *Will* is the direct object, and the meaning changes so that we understand *Liza* to be *Will's* teacher.

In (3) the grammatical relationships are the same as in (2), but we understand it to have the same meaning as (1), despite the structural difference between (1) and (3).

Syntactic rules reveal the grammatical relations among the words of a sentence and tell us when structural differences result in meaning differences and when they do not. Moreover, the syntactic rules permit speakers to produce and understand a limitless number of sentences never produced or heard before – the creative aspect of language use. Thus, the syntactic rules in a grammar account for at least (Fromkin: 2003):

- 1). *The grammaticality of sentences*
- 2). *Word order*
- 3). *Hierarchical organization of sentences*
- 4). *Grammatical relations such as subject and object*
- 5). *Whether different structures have differing meanings or the same meaning*
- 6). *The creative aspect of language*

Syntactic Categories: Lexical and Non-Lexical Categories

Lexical Categories (cf. Parts of Speech and Word Classes)

Two ways of defining lexical categories:

A. Through meaning (notional definition):

Lexical Categories (cf. Parts of Speech and Word Classes)	
Categories	Functions/Meanings
Nouns (N)	naming entities and objects (e.g. Harry, book)
Verbs (V)	designating actions, sensations, and states (e.g. run, feel, remain)
Adjectives (A)	designating properties or attributes of the entities denoted by nouns (e.g. that tall building)
Adverbs (Adv)	designating properties or attributes of the actions, sensations, or states denoted by verbs

Problems: Think about the following examples:

1. Difficulty, truth, freshness...
2. Give someone a **push/shovel**.
- 3.a. Mice {**Like**} cheese.
- 3.b. Mice {are **fond** of} of cheese.

B. Through Structure (test with morphological and syntactic frames)

Lexical Categories (cf. Parts of Speech and Word Classes)		
	Morphological Frames	Syntactic Frames
Nouns	can be inflected with the plural morpheme -s (<i>plural</i>)	Preceded by a determiner like <i>a, an, the, my, his, John's</i> , etc. D , D A
Verbs	1.can be inflected for tense/aspect: -ed/-ing 2. can be inflected for third person singular morpheme -s	1. can start a sentence making a command/request (Please) ! 2. Follows an auxiliary verb like can, may, etc. Aux
Adjectives		
Adverbs		

Non-Lexical or Functional Categories (or Closed Lexical Categories)

Non-Lexical or Functional Categories (or Closed Lexical Categories)		
Determiners: <i>the, a, some, many, all</i>		(A) N
Auxiliary verbs: <i>may, might, can, could, should, will, must, do, have, be</i>		1. N V (e.g. <i>Tom can go.</i>) 2. N V? 3. not (* <i>ate not</i> , * <i>not will</i>)
Prepositions <i>in, at, on, with, before, after....</i>		1. N (e.g. <i>on campus</i>) 2. right N (e.g. <i>right on campus</i>)
Conjunctions: <i>and, but, or</i>		N N A A V V
Pronouns <i>I, you, he/she....</i> <i>me, you, him/her....</i> <i>my, your (a type of determiner)</i>		1. Function as a subject 2. Function as a object 3. Function as a determiner

Some cautionary remarks about lexical categories:

1. Sometimes, the same word may belong to more than one category (i.e. a case of **zero derivation**). E.g. *I took a long **walk**. I gave him a dirty **look**.*

2. Some words that have different meanings and belong to different categories may be sound the same; these words are called **homophones**. e.g. *I **rocked** the baby till it fell asleep. vs. She threw a **rock** into the pond.*

Exercise: Indicate the category of each word in the following sentences; is it true or false:

- The glass suddenly broke.
Det / N / Adv / V
- A jogger ran towards the end of the lane.

Det / N / V / P / Det / N / P / Det / N

c. The peaches never appear quite ripe.

Det / N / Adv / V / Det / A

d. William will play the trumpet and the drums in the orchestra.

N / Aux / V / Det / N / Conj / Det / N / P / Det / N

Linear Order

Certain words must appear in a certain order in a sentence.

The change of linear order changes the meaning of the sentence.

(a) “Gladiator” defeated “Crouching Tiger, Hidden Dragon”.

(b) “Crouching Tiger, Hidden Dragon” defeated “Gladiator”.

Constituent and Hierarchical Structure

The individual words in a sentence can be organized into some **natural groups**.

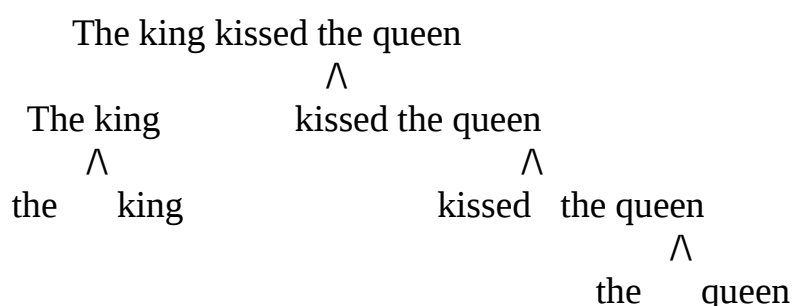
E.g. How do you group the words in (a)?

a. The king kissed the queen.

a1: [[The king kissed][the queen.]]

a2: [[The king] [kissed the queen.]]

We call such “natural groupings” **constituents** of the sentence. These constituents can be represented in the following **hierarchical structure**. (Recall the hierarchical structure of words)



Constituency Tests

A constituent must be **meaningful**; ‘kissed the’ in ‘the king kissed the queen’ is not constituent.

The following three tests, in the following table and illustrated below, can help us find out the constituents in a sentence:

Constituency Tests	
Tests	Examples
Autonomy Test : Can the part stand on its own as an utterance?	Garfield gave Odie a big mouse. Q: What did Garfield give to Odie? A: A big mouse. → ‘a big mouse’ forms a constituent.
Substitution Test : Can the part be replaced by a single word that means the same thing; that is, can the part be substituted by a pro-form ?)	Mary bought a very nice car . It is very expensive. → ‘a very nice car’ forms a constituent.
Movement Test (Can it move around?)	I like ripe bananas . → Ripe bananas , I like! I asked him to treat me better and treat me better, he did.
Coordination Test (Can it be conjoined with another group of words by a conjunction?)	The students often come to class but never stay until the end .

Some points to bear in mind when you apply the constituency tests:

1. We can only say whether or not a given group of words is a constituent *relative to a particular sentence*. For example:
 (a) Pat and Leslie raised llamas.
 (b) Robin raised Pat and Leslie adopted Sandy.
2. A single constituent may be part of another bigger constituent. For example: Many UB professors eat at really fancy restaurants
3. Not all constituents can pass all the three tests.

Autonomy Test

Q: In what place do many UB professors eat?
 A: Really fancy restaurants.

Substitution Test

Many UB professors eat at really fancy restaurants. But, they are usually notorious for the high price.

Movement Test

**Really fancy restaurants, many professors of English eat at.*

Ambiguity

Ambiguity	
Types of Ambiguity	Examples
Pragmatic Ambiguity: ambiguities caused by different speech acts	Can you pass me the salt?
Lexical ambiguities: ambiguities caused by words with more than one meaning./	1. My mother bought me a bat for my birthday. 2. The pen is empty.
Structural Ambiguity: Ambiguities caused by more than one way to interpret the phrase or the sentence.	1. dirty street fighter 2. No smoking section available. 3. Visiting relatives can be boring.

Generative Grammar (GG)

Generative Grammar (GG) is a formally explicit grammar which defines the set of grammatical sentences in a language; the term has been introduced by Chomsky in this sense, and is also more generally used for the grammar(s) developed by Chomsky and the research community around him.

S → NP VP
 VP → V NP
 NP → John, Mary
 V → likes

Generates:

John likes Mary
Mary likes John

Generative Grammar (GG) can be divided into three main periods. An early one

dating from Chomsky (1957), a central one which was initiated by Chomsky (1965) and a more recent one which reached its maturity in the 1980's with the development of the *Government and Binding (GB)* model.

Phrase Structure Grammar

This is a basic type of grammar which attempts to show the structure which lies behind a sentence by breaking it down into its component parts. It can be represented in the form of tree diagrams.

Phrases

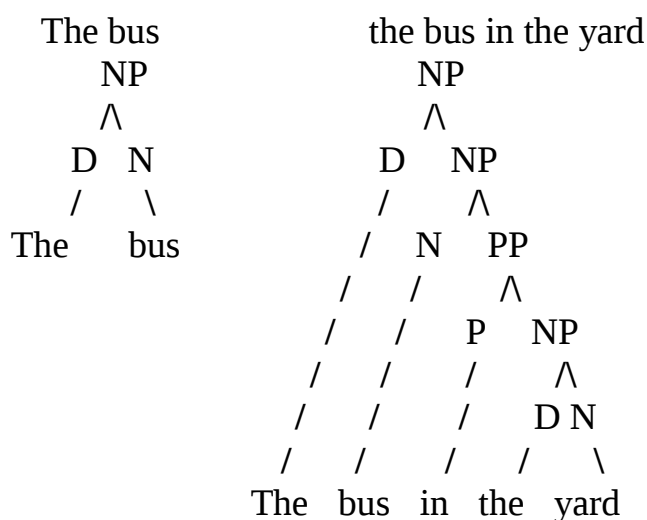
NP: Noun Phrase	the apple, a Yemeni student
VP: Verb Phrase	study hard, play the piano, write an English letter
PP: Prepositional Phrase	in the class, above the earth, under the table
AP: Adjective Phrase	Very tall, quite certain, very good

Noun Phrases (NPs) may function as the subject or as various objects in a sentence. It always contains some form of a noun (common nouns like boy, proper nouns like John, or pronouns like he). Examples: the child, a police officer, and so on thus, an NP can consist of one word (he, John) or more words (the child, a police office) NP can even include a verbal complex as shown by:

Given below is the syntactic tree diagrams of the NPs : "*the bus, the bus in the yard* " and their phrase structure rules:

NP → (D) N (PP)

PP → P NP



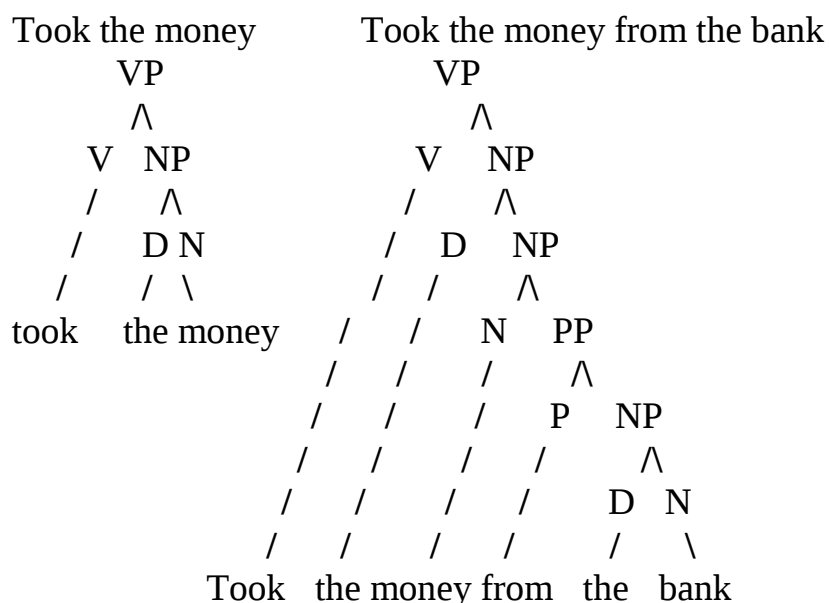
Verb Phrases (VPs) always contain a Verb (V), which may be followed by other categories, such as a Noun Phrase or Prepositional Phrase (PP). The Verb Phrases

are those that can complete the sentence:

Given below is the syntactic tree diagrams of the VPs : "*Took the money, took the money from the bank* " and their phrase structure rules:

VP → V (NP) (PP)

S → NP (Aux) VP



Exercise: Draw the tree diagram of the following phrases.

1. repaired the telephone
2. the success of the program
3. a film about pollution

The Main Phrase Structure Rules

1. S → NP (Aux) VP
2. NP → (D) (AP) N (PP)
3. VP → V (NP) (PP) (Adv)
4. PP → P NP
5. AP → A (PP)

S = Sentence → NP = Noun Phrase + VP = Verb Phrase
 NP = Noun Phrase → D = Determiner + (A) = (Adjective) + N = Noun
 (Determiners = articles, possessive pronouns, demonstrative pronouns, numerals, etc.)
 VP = Verb Phrase → V = Verb (Auxiliary (Aux) and full Verb) + NP = Noun Phrase

Other syntactic categories are Sentence (S), Determiner (Det./D), Adjective (Adj./A), Noun (N), Pronoun (Pro), Preposition (P), Prepositional Phrase (PP), Adverb (Adv.), Auxiliary Verb (Aux), and Verb (V).

The procedure in the phrase structure grammar using the Phrase Structure Rules is illustrated in three steps:

1) Phrase Structure Rules

(R1) $S \rightarrow NP + VP$

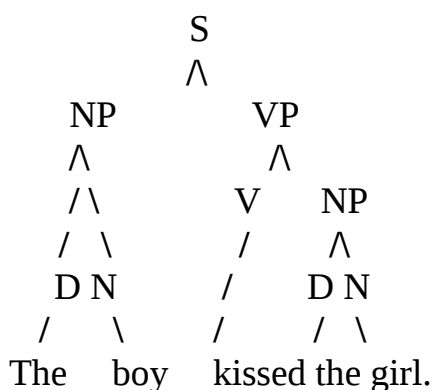
(R2) $NP \rightarrow D + (A) + N$

(R3) $VP \rightarrow V + NP$

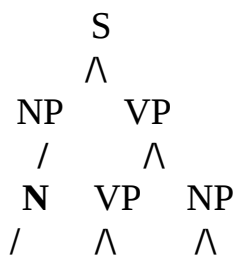
2) Lexical Insertion Rules

D the, a
 A happy, sad, tall
 N boy, girl, man, toy
 V kissed, hit,

3) Phrase Structure Using Tree Diagram



Let us now observe the syntactic tree diagram using the phrase structure grammar (rules) in the following sentence: “*Peter has met the new boss.*”



sentence)

2) Add Transformational rules (e.g., equi NP deletion)

the girl the girl → *the girl who*

Surface Structure (SS): (what we speak and hear)

The boy kissed the girl who hugged the man.

Transformations

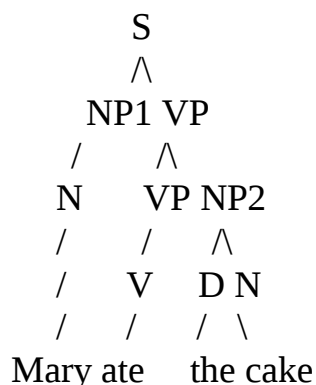
A transformation is a change in form between the deep and the surface structures and maintains the relatedness of semantically similar sentences such as active and passive ones. It changes the basic sentence structure into a derived one in the deep structure as shown below:

Active → **Passive**

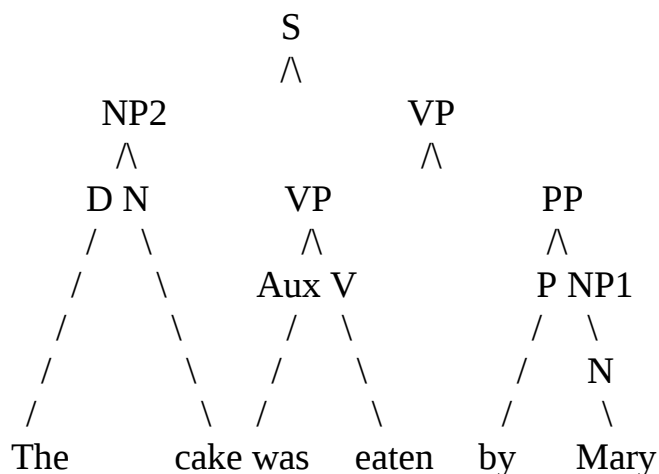
NP1 V NP2 → NP2 be V -en by NP1

Mary ate the cake. → *The cake was eaten by Mary.*

Let us observe the syntactic tree diagram using the phrase structure rules in the following active sentence: “*Mary ate the cake.*”



Let us observe the syntactic tree diagram using the phrase structure rules in the following passive sentence: “*The cake was eaten by Mary.*”



Chomsky's Transformational Grammar

What is Chomsky's Transformational Grammar? It is a theory of how the components of linguistic competence work together.

Why it is important? It is important because it demonstrated the inadequacies of the behaviorist attempt to explain human language.

1. Skinner (Verbal Behavior, 1957) a behaviorist account of language
2. Chomsky (1957, 1965, and 1975) developed the transformational theory as a theory of language.
3. Chomsky's Challenges to Behaviorism:

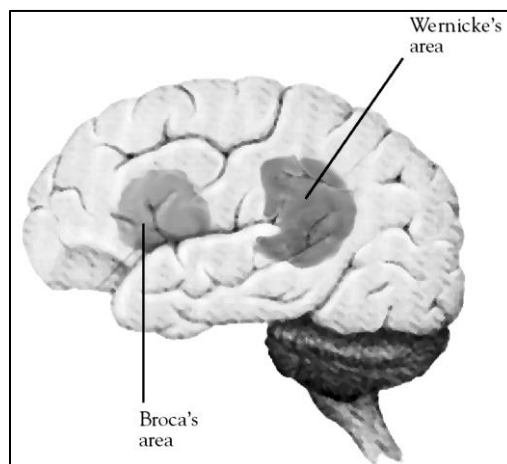
1) Linguistic universals languages developed independently, why are there linguistic universals? These universals were thought to derive from an innate mechanism that provided humans with the structures needed to acquire and use our languages. E.g. Language Acquisition device (LAD) critical period in language development

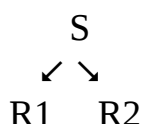
2) Separation of the syntactic system and the semantic system.

Broca's aphasia:
loss of grammar

Wernicke's aphasia:
loss of meaning

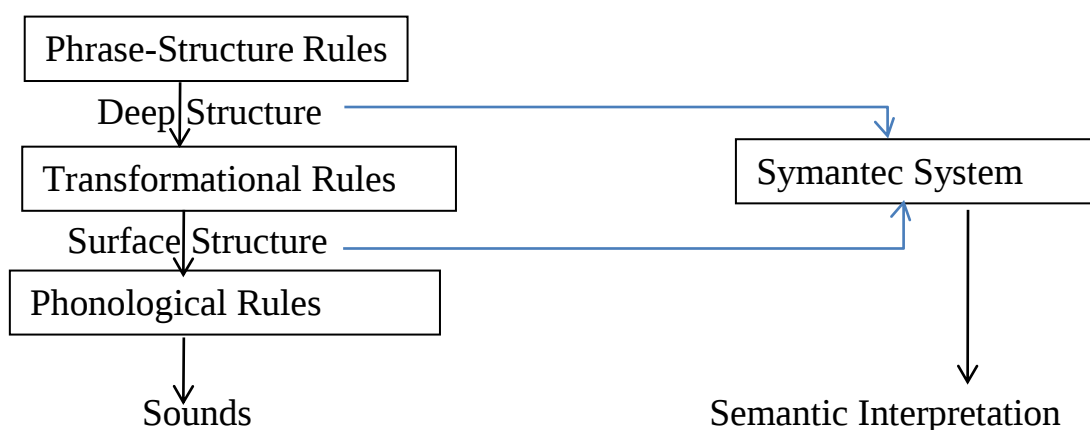
3) Sentence Ambiguity
Behaviorist Account





Chomsky's account of (4 kinds of ambiguity) *phonological ambiguity*, *lexical ambiguity*, and *syntactic ambiguity* (2 kinds)

C. Structure of Transformational Grammar



(Extension of Phrase Structure Grammar) (Transformational Grammar)

- a) Provides for openness
- b) Enables sentences with embedded clauses)

EXAMPLE: This is the house that Jack built.
 This is (the dog that lives in) the house that Jack built.

- c) Shows how sentences with different structures can
 Share a meaning.

“The girl was kissed by the boy.” vs. “The boy kissed the girl.”

Transformational Grammar

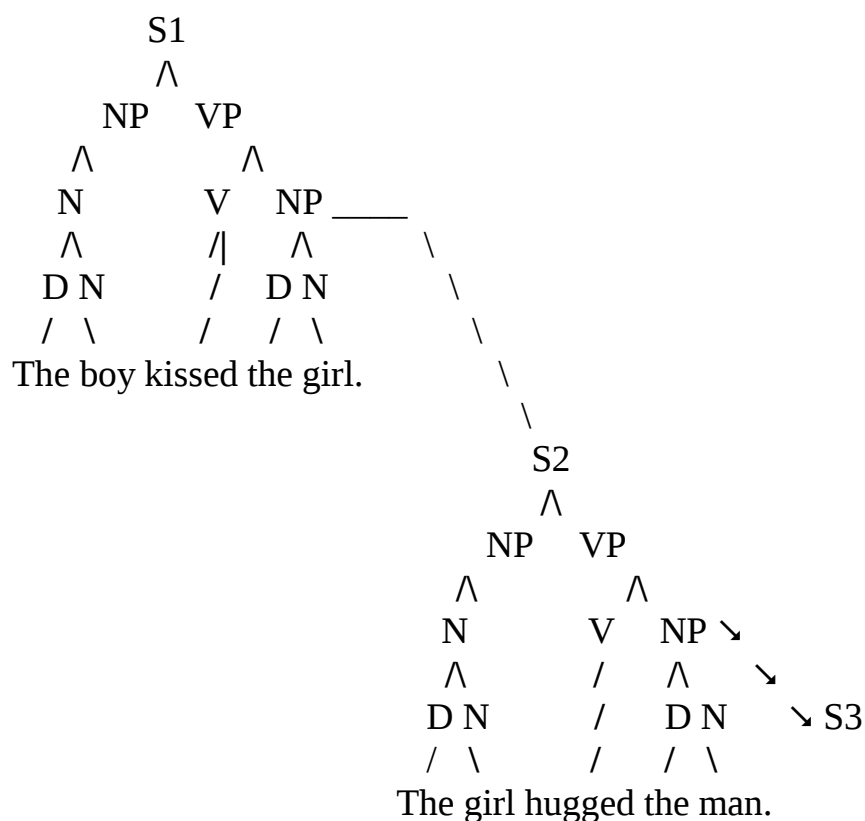
Transformational Grammar is an Extension of Phrase Structure Grammar that involves the following considerations:

1) Change the phrase structure rules by adding recursive processes.

(R1) $S \rightarrow NP + VP$

(R2) $NP \rightarrow D + (A) + N + (S)$

(R3) $VP \rightarrow V + NP$



Implications of Transformational grammar

1. Shared meaning implies shared deep structures

The boy kisses the girl. (Deep Structure)

↓

Past tense transformation

↓

The boy kissed the girl.

↓

Passive voice transformation

↓

The girl was kissed by the boy.

2. Meaning and surface structure are only indirectly connected.

Extended Example: *multiple types of ambiguity*:

1) *Phonological Ambiguity*:

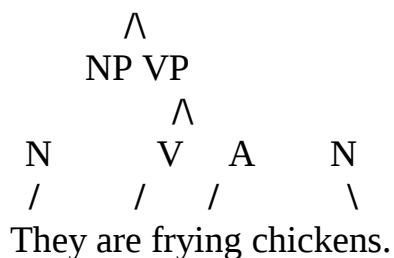
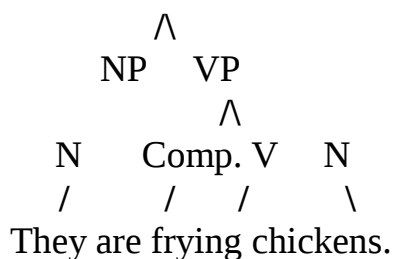
“I heard there is a black hole near Uranus.”

2) *Lexical Ambiguity*:

Horses are introduced to America.

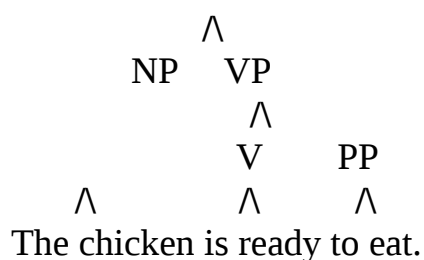
3) *Surface Structure Ambiguity*:

Two surface structures and two deep structures.



(4) *Deep structure Ambiguity*:

One surface structure



Two deep structures:

$\wedge$
 $\wedge \quad \wedge \quad \wedge$
 The chicken is ready to be eaten.

$\wedge$
 $\wedge \quad \wedge \quad \wedge$
 The chicken is ready to eat (something)

Summary of Chomsky' Transformational Grammar

- A. There is great variability across languages (linguistic diversity)
- B. In spite of this diversity, there are many things common across languages (Linguistic Universals)
- C. To be competent users of a language we must have three things: syntactic system, semantic system, phonological system.
- D. Chomsky's theory explains how these systems work and how they are the source of linguistic Universals.

The Standard Theory

Generative Grammar (GG) has undergone several major revisions since its initial introduction by Noam Chomsky in 1957. The present term *standard theory* is used to refer to the model of generative grammar as expounded in the 1965 book "*Aspects of the Theory of Syntax*" by Chomsky.

SYNTAX

Phrase-structure rules

Lexicon

Filters

Deep Structure → ————— → Semantics

Transformations

Surface structure → ————— → Phonology

Universal Grammar, Adequacy and Language Acquisition: Any model of universal grammar (i.e. recent generative grammar), if it is to achieve the higher goal of *explanatory adequacy*, must have three attributes: (1) universally valid, (2) psychologically real, and (3) maximally constrained.

Summary of Syntax

Syntax concerns the possible arrangements of words in a language. The basic unit is the *sentence* which minimally consists of a main clause (containing at least a subject and verb).

Linguists distinguish between *deep structure* — the level on which the unambiguous semantic structure of a sentence is represented — and *surface structure* — the actual form of a sentence.

Sentence structure is normally displayed by means of a *tree diagram* (the so-called ‘phrase structure’) and by a system of *re-write rules* one can move from an initial unit (the entire sentence) to the individual elements (a so-called ‘terminal string’).

The term *generation* is used in linguistics to *describe exhaustively* the structure of sentences.

Whether it also refers to the manner in which speakers actually *produce* sentences, from the moment of conceiving an idea to saying a sentence, has not been finally clarified yet.

A *transformation* is a change in form between the deep and the surface surface and maintains the relatedness of *semantically similar* sentences such as active and passive ones.

Generative grammar can be divided into three main periods. An early one dating from Chomsky (1957), a central one which was initiated by Chomsky (1965) and a more recent one which reached its maturity in the 1980’s with the development of the *government and binding* model.

Universal grammar represents an attempt to specify what structural elements are present in *all* languages, i.e. what is the common core, and to derive means for describing these adequately.

Language would appear to be organized modularly. Thus syntax is basically independent of phonology for instance, though there is an *interface* between these two levels of language.

The purpose of analyzing the internal structure of sentences is

- 1) to reveal the hierarchy in the ordering of elements
- 2) to explain how surface ambiguities come about
- 3) to demonstrate the relatedness of certain sentences

To begin with, however, students should be aware of how syntax is acquired by young children.

ACQUISITION OF SYNTAX

Input	Language heard in child's surroundings
Step 1	Abstraction of structures from actual sentences
Step 2	Internalisation of these structures as syntactic templates (Unconscious knowledge)

(Source: Raymond Hickey The Neat Summary of Linguistics P. 14)

Section 7: Arabic Morphology and Syntax

Arabic Morphology is a root-based system in which words are derived from radicals. Radicals are considered the fundamental consonants used in an Arabic word. Typical Arabic roots consist of three consonants, while some roots consist of four consonants. Less complex words, normally words used with children, consist of only two radicals (e.g. 'ab- father, yad- hand).

A root contains the seed meaning of the word, but the pattern may change that meaning. Thus, combinations of the same root with different patterns may have different meanings. For instance, the combination of the root ك.ت.ب (k.t.b) and the pattern mXXX (here, X is a variable) results in the word مكتب (mktb, "office"). Combining the same root with the pattern XXAX, results in the word كتاب (ktAb, "book"). Verbs are also generated in the same way. Actually, there are 10 different patterns for verbs, but not all them are valid to combine with every root.

Sometimes, there are prefixes and/or suffixes attached to words. Those affixes may modify several features of the word, including its number (singular, dual, plural or collective), its gender (masculine, feminine or no gender), possession, definiteness, case (nominative, accusative or genitive), tense (past, present or future) and more. Arabic affixes have the feature of concatenating with each other according to predefined linguistic rules, which increases the overall number of affixes.

In *Arabic Syntax*, the Modern standard Arabic (MSA) sentences usually stick to the Verb-Subject-Object (VSO) structure. (English, by way of contrast, is SVO.) Within an Arabic sentence, there are several required points of agreement between the verbs and the subjects. Adjectives and nouns mostly need to agree on their gender, number and definiteness. An Arabic Noun Phrase places the noun before the adjectives, which is the opposite of English Noun Phrase Syntax.

Arabic Word order

Unlike the English language, Arabic Morphology and Syntax is typically patterned and predictable. For example, the verb is often placed before the subject noun, while adjectives follow their nouns in which they describe (Battle, 2002). As a result, Arabic speakers use participles to “bring out” the subject in front of the verb. ‘inna, meaning “it is true that”, is a common participle used in Arabic. For example,

Arabic: 'inna ('a)l-walad(a) yaqra'(u) kitaaba-h(u)

Meaning: it is true that the boy reads (the) book (of) him

Translation: the boy reads his book

Other Word Order Characteristics of Arabic:

Auxiliary verbs precede main verbs, and prepositions precede their objects. Adjectives follow the noun they are modifying and agree with the noun in case, gender, number, and state. When producing negatives, the particle is placed before the verb. There is no copula verb, auxiliary “do,” future tense, modal verbs, gerunds, or infinitive forms in Arabic, and no indefinite articles. Plural nouns agree with feminine singular unless they denote human beings (Prchazka, 2006)

Arabic Noun Inflection

Arabic has three grammatical cases: nominative, genitive and accusative. Nominative cases are subjects of a verbal sentence or predicates of a non-verbal sentence. Certain adverbs retain nominative markers as well. Accusative case is direct object after the transitive verb. Genitive case refers to the marking of a noun modifying another noun. Nominative case /u/ Singular nouns marked with /-u/, Accusative case /a/ Singular nouns marked with /-a/ Genitive case /i/ Singular nouns marked with /-i/

Arabic Number

Arabic distinguishes between nouns based on three different quantities. Nouns are singular, dual, or plural. Dual is typically marked with the suffix –ani while the plural form is either formed by –una for masculine or –at for feminine.

Arabic Genders

The masculine gender of a noun is unmarked, while the feminine gender of the noun is typically marked –at.

Male teacher: mu'allim

Female teacher: mu'allima(t)

Arabic Tense

For finite verbs, Arabic has two tenses: perfect and imperfect. A different vowel patterns are used to form passive voice (e.g. darab-a “he hit” vs. durib-a “he was hit”). According to Battle, the most commonly used verb tense is imperfect tense (2002).

Section 8: Semantics

Semantics is concerned with the study of meaning and is related to both philosophy and logic. *Semiotics* is the study of communication systems in general. *Sign language* is a common means of communication among those who are deaf and can, if learned from childhood, approach natural language in terms of scope and flexibility.

There are at least three aspects in the nature of “meaning”:

1. Information content
2. Mental representation
3. Context of an utterance (the study of pragmatics)

Major Subfields in Semantics

1. Lexical semantics (meanings of words)
2. Sentential semantics (meanings of sentences)

Approaches to Word Meaning

Definitions Theory: the meaning of a linguistic expression is given in its

definition.

Problems: 1. circularity

2. Ignoring the contextual influence

Referential View of Meaning: The meaning of a word is the actual object that the word refers to (i.e.. its referent).

Problems: 1. Words for non-existing entities have no referent in the real world.

2. Different words/phrases may have the same referent, but they do not necessarily have the same meaning.

Mental Representations: The meaning of an entity is the mental image that evokes.

Problems: 1. the influence of perspectives

2. Prototypical effect: What is your mental image of a word like “bird”?

Componential analysis (Lexical Decomposition): The meaning of a word can be decomposed into *semantic features/properties*. **e.g.**

woman	father	girl
+female	+male	+female
+human	+human	+human
-young	-young	+young
....		

1. Nouns can be discussed in terms of the feature/property: +/- count, e.g. compare the two groups of nouns:

a. *table, stone, pencil, cup, house, ship, car*

b. *milk, alcohol, rice, soup, mud*

2. Lexical Decomposition of Verbs, e.g. compare the following groups of verbs:

a. *ask, tell, say, talk, converse*

b. *shout, whisper, mutter, drawl, holler*

c. *run, melt, happy, pop*

Word Knowledge: Some words are defined with respect to knowledge about the way the world typically works (e.g. Is Pope a **bachelor**? How about a 3 year-old boy?).

A Truth-based Approach to Phrasal and Sentential Meanings

Semanticists call a sentence's being true or false its **truth value**, and call the facts that would have to obtain in reality to make a sentence true or false, its **truth conditions**.

Truth conditions vs. Reference

1. Truth conditions can be applied to nouns that have no reference (e.g. *Santa Clause* or *unicorn*).
2. Truth conditions can explain why expressions that have the same referent do not have the same meaning. e.g. "Bill Clinton" and "the winner of 1996 U.S. Presidential election" have different truth conditions.

Possible Worlds: Speakers often use languages to do more than describe the world as it is. For examples, speakers often hypothesize situations different from reality (i.e. counterfactuals). Such situations that are not asserted true are called possible worlds (or possible situations, possible scenarios).

Relationship between Words:

Synonym refers to the words have the same or nearly the same meaning. e.g. *couch/sofa*, *large/big*, *boy/lad*, ... Some synonyms imply positive or negative attitude: *naive/gullible/ingenuous* Some synonyms are collocationally restricted: e.g. *my big sister* vs. *my large sister*

Antonym refers to the words have the opposite meanings. Antonyms share all but one semantic property

1. Complementary/contradictory Antonyms : The positive value of one implies the negative of the other. (An item has to be in X or Y, but not both.) e.g. *married/unmarried*; *visible/invisible*; *pass/fail* (for a test), *hit/miss* (for a target)
2. Gradable Antonyms : The positive of one does not necessarily imply the negative of the other. e.g. *tall/short*, *hot/cold*, *fast/slow*, *happy/sad*
Think about the following sentences:
How _____(high/low) is the mountain? Ten thousand feet _____(high/low).
How _____(tall/short) is your brother? Five feet _____(tall/short).
3. Relational opposites : Words express alternate viewpoints in a relation. (An item has to be in X, or Y, or neither, but not both.) *teacher/student*, *give/receive*, *employer/employee*, *larger/smaller*; *over/under*; *married/bachelor*;

dead/alive

Exercise: Identify the type of antonyms in the following pairs:

good/bad	parent/offspring	legal/illegal	false/true
beautiful/ugly	asleep/awake	husband/wife	taller/shorter

Homonym: Words of different meanings that are pronounced the same or even spelled the same. *tail* vs. *tale* *bat* (baseball bat) vs. *bat* (animal) *bear* (v) vs. *bear* (animal)

Polysemy: A polysemous word having multiple meanings (either historically or conceptually related)

Hyponym: Hyponym is a relation of inclusion. A hyponym includes the meaning of a more general word. E.g. *dog* and *cat* are hyponyms of *animal*. *sister* and *mother* are hyponyms of *woman*.

Note: ***dog*** and ***puppy*** are not hyponym of ***dog***.

Summary of Semantics

Semantics is concerned with the study of meaning and is related to both philosophy and logic.

Semiotics is the study of communication systems in general. *Sign language* is a common means of communication among those who are deaf and can, if learned from childhood, approach natural language in terms of scope and flexibility.

There are four recognizable types of meaning: *lexical* meaning, *grammatical* meaning, *sentence* meaning and *utterance* meaning which refer to the areas of derivational morphology, inflectional morphology, syntax and pragmatics respectively.

External meaning relationships involve *sense* (relationships between words) and *denotation* (relationship of word to what it signifies).

There are various internal meaning relationships such *synonymy* (sameness of meaning), *antonymy* (difference in meaning), *hyponymy* (hierarchical order of meaning).

Different models for semantic analysis are available: *prototype theory*, where a central concept is taken as typical and less central ones are peripheral, and

componential analysis which seeks to break words down into their component semantic parts.

General Exercises

Morphology: Define the area and the terms morpheme and allomorph. Distinguish between inflectional and derivational morphology giving examples to illustrate what you mean. What does the linguist understand by an open and a closed class. What is a word class and what categories do conjugation and declination refer to? Distinguish between tense and aspect, illustrating what you mean by examples from English. What is language typology? In this connection distinguish between synthetic (inflecting), analytic and agglutinative languages and offer a general characterization of English within this framework.

Summary of Lexicology: What is meant by word formation? Explain what the following types refer to: composition, affixation, conversion (zero derivation), back formation, contractions, clipping. Explain what is meant by productivity and give examples from English to illustrate your answer.

Syntax: Define the area and state what its main unit of analysis is. How do the latter subdivide? What are major and minor syntactical categories? Mention in this connection what is meant by a phrase structure grammar. What is the main theory of syntax at the present? What are the main periods recognized within this theory? Explain the terms generative and transformation. Who can they be traced back to?

Semantics: Define the area and the following key terms: sense and denotation; lexeme. What is meant by homonymy and polysemy? Explain the following meaning relationships: synonymy, antonymy (graded and non-graded) and hyponymy. Distinguish between the following kinds of meaning: lexical, grammatical sentence and utterance meaning. What is understood by a word field? How is the concept useful? What is meant by prototype theory in semantics?

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